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Managing Vegetation with Sheep

Province of British Columbia
MINISTRY OF FORESTS

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The need for managing forest vegetation

In British Columbia, all areas that are harvested on Crown land must be reforested and tended to a free-growing state. A reforested area is considered to be free growing when the seedlings are free from competing vegetation and can continue to grow uninhibited.

Competing vegetation, such as salmonberry, thistles, ferns, pinegrass, and some undesirable tree species, divert limited supplies of light, water, and nutrients away from commercially valuable tree seedlings. This can result in poor growth or even seedling mortality in many cases.

To combat competing vegetation and enhance the success of our reforestation efforts, the Forest Service operates an extensive vegetation management program throughout the province.

Vegetation management options

A variety of options are available for controlling competing vegetation:

- **biological methods** -- living organisms, such as sheep, are used to control competing vegetation;
- **chemical methods** -- herbicides are used to control unwanted vegetation;
- **controlled burning methods** -- fire is used to clear sites of vegetation;
- **manual or physical methods** -- hand-held cutting tools are used to remove vegetation; and,
- **mechanical methods** -- heavy equipment is used to clear sites of woody debris and vegetation.

Foresters consider all vegetation management options before determining which method, or combination of methods, is best suited for a particular site. Some of the factors that are considered include:

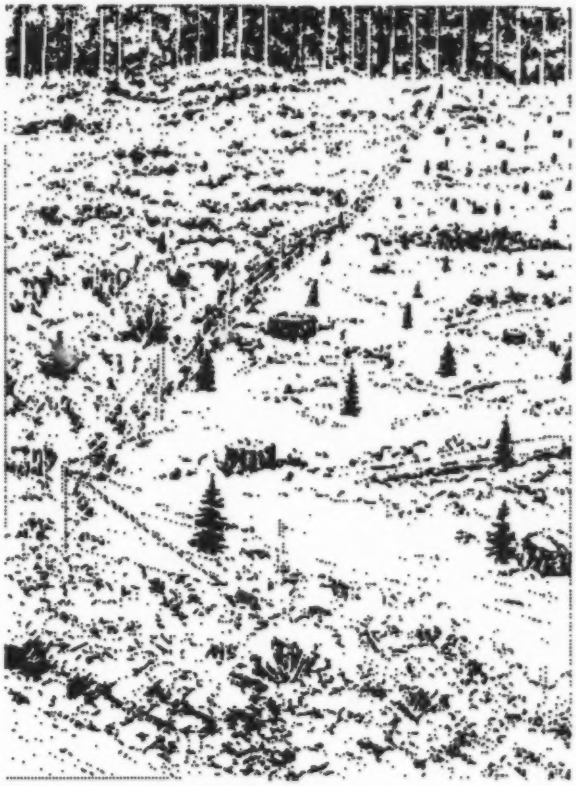
- the ability of the option to meet the required silviculture objectives;
- the impact on people;
- the impact on the environment (e.g., water supplies, soils, fish and wildlife and their habitats); and,
- the total cost of the treatment to bring the area to a free-growing state.

Sheep grazing as a vegetation management tool

Sheep grazing can be used to prepare a harvested site for reforestation, or as a means of controlling competing vegetation after new seedlings have already been established.

The use of sheep for vegetation management in British Columbia began, on a trial basis, in the Cariboo region in the mid 1980s. This was followed by other trials in the Clearwater forest district, the Bulkley forest district, and on Vancouver Island. In addition, sheep have been used to control vegetation in the Saanich Seed Orchard, near Victoria, for over a decade.

Currently, trials have expanded to include almost every forest region in the province, and sheep are now being used to graze thousands of hectares. These trials are providing valuable information on the advantages and disadvantages of sheep grazing as a vegetation management tool.



Grazing versus ungrazed forest site

The effectiveness of sheep

The effectiveness of sheep in controlling competing vegetation can be influenced by many factors. Some of the important factors to consider are:

Choosing a site

The site location must first be suitable for sheep grazing. The grazing area should have:

- a good supply of suitable forage;
- slight to moderate slopes;
- minimal woody debris or other obstacles; and,
- a low threat of predators.

Good road access is also important so that the sheep can be

easily transported to and from the site. An adequate water supply is essential, and can be either hauled or pumped to a watering site to avoid contamination of local water sources.

After grazing, sheep are kept in holding pens

Selecting the right sheep

A thorough knowledge of sheep, their habits, forage preferences, and herding instincts is essential to the success of a grazing project.

Sheep from a single flock are preferable, since sheep from different flocks will not initially stay together. Prior to moving the flock to the site, the sheep should be inspected, vaccinated, and treated for disease or parasites.

Timing a sheep grazing operation

Proper timing is crucial to a successful grazing project. The target vegetation must be palatable and in sufficient quantity to satisfy the sheep.

If forage is not adequate in quantity or quality, hungry sheep may develop a taste for tree seedlings or poisonous plants. To ensure that sufficient forage is available, sites may be seeded with grasses, clover, or legumes. Seeding not only increases the sheep's preferred food supply, but also reduces the establishment of undesirable plant species.

The nutritional value of forage decreases with drought and frost, or when the plants go to seed. During these periods, the sheep are removed from the site to prevent them from grazing on seedlings.

Important environmental considerations

While sheep grazing can be an effective method of managing vegetation in some areas, there are certain environmental factors which must be carefully considered before choosing this option. Some of these are:

Wildlife concerns

Introducing domestic livestock into forested areas may have an impact on wildlife. This can occur for several reasons:

- sheep grazing may displace wildlife species that depend on vegetation as a food source;
- conflicts can occur when sheep are located in areas with

large numbers of predators such as grizzly bears, wolves, or coyotes; and,
- disease and parasites may be transmitted to local wildlife populations through contact with sheep.

Water contamination

Water supplies may be contaminated if sheep are allowed direct access to streams or other water bodies. Streamside grazing and locating holding pens too close to water sources can also lead to water contamination.

Sheep grazing can lead to predator/prey conflicts

Soil erosion

Wet conditions and crowding too many sheep into one area, over an extended period of time, can cause soil compaction, followed by surface crusting and soil erosion. Grazing on very dry soil can also increase the erosion hazard by removing soil cover and loosening soil particles.

Transfer of undesirable plant species to forest sites

Sheep grazing has the potential to spread undesirable vegetation or noxious weeds, such as thistle and knapweed.

Shearing the sheep prior to transporting them to the grazing site can reduce the possibility of dispersing undesirable seeds which become attached to the sheep's coats. Holding the sheep in a designated area after their arrival at the treatment site, until all seeds have passed through their systems, will also help reduce the possibility of dispersing undesirable plant species.

On-site management practices

Upon arrival at a site, the sheep should be congregated in a pre-designated area, either a corral or fenced-in area, where they are fed and given water before being released for grazing.

This is done because hungry sheep often do not discriminate between the target vegetation and tree seedlings. In order to allow the desired dietary preferences to form, and to minimize seedling damage, the first site to be grazed is often one with established crop trees of at least two years of age.

Movement of the sheep should be carefully regulated to achieve uniform grazing and minimal crop tree damage. Controlling flock movement is also a good way of avoiding or reducing predator problems. Sheep can be controlled by using trained

shepherds, herding dogs, and portable fencing. Constant supervision is required to keep the flock together and moving effectively over the site.

Target vegetation is suppressed by both grazing and trampling. When the vegetation is reduced to the desired level, the sheep are moved to another area. Sites are generally grazed once per season, although two passes may be necessary in some cases. Additional grazing treatments may be needed in subsequent years to ensure that the crop trees reach the free-growing stage.

Control of the flock is required for effective grazing

Good planning and careful on-site management will result in a sheep grazing operation that is efficient and compatible with forest regeneration. On-site management operations should include:

- night corrals to avoid excessive trampling of the site, and to protect the flock from predators;
- changing bedding-down locations every day to prevent seedling damage;
- adequate water supplies and salt licks located in appropriate areas;
- on-site veterinary inspections to ensure the general well-being of the sheep;
- removal of unhealthy or injured sheep from the site to minimize risk of disease or predator attack; and,
- measures to protect the sheep and reduce the risk of predators, such as portable fencing and guard dogs. Additional protective measures include checking sites for signs of predators prior to releasing the sheep, burning or removing carcasses from the site, and disposing of other refuse properly.

The role of sheep grazing in British Columbia

As with all methods of vegetation management, sheep grazing has characteristics which make it suitable for use in some areas of British Columbia, but not in others.

When considering sheep grazing as a management option, the following questions should be asked:

- Can sheep grazing meet the desired silviculture objectives for the site?
- Is the site accessible and suitable for sheep grazing?
- Can impacts on the environment be kept to a minimum?
- Is the potential for predator / prey conflicts low?
- Is the overall treatment cost-effective?

In areas where the above conditions are met, sheep grazing can be a viable vegetation management option.

For more information on Forest Vegetation Management or a copy of the brochure contact the nearest BCFS regional or district office or write to:

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Silviculture Practices Section